

CLAIMS

What is claimed as new and desired to be protected by Letters Patent of the United States is:

1. A magnetic recording method, comprising:
 - moving a magnetic recording medium relative to a write head and a readout head in one direction,
 - performing preliminary writing using the write head on the magnetic recording medium at a plurality of different current values,
 - reading the preliminarily written information using a reading head, an appropriate value of a write current for the magnetic recording medium is found on the basis of results of the reading, and
 - performing regular writing using the write head on the magnetic recording medium at the appropriate value thus found.
2. A magnetic recording apparatus comprising:
 - a write head for writing information on a magnetic recording medium,
 - a readout head for reading magnetic information from the magnetic recording medium, and
 - control means for controlling the heads,

the control means controlling:

a preliminary writing process, in which during movement of the magnetic recording medium relative to the write head and the readout head in one direction, the write head performs preliminary writing on the magnetic recording medium at a plurality of different current values,

a preliminary writing reading process, in which the readout head reads results of the preliminary writing,

an appropriate value acquiring process, in which an appropriate value of a write current for the magnetic recording medium is acquired on the basis of results of the preliminary writing, and

a regular writing process, in which the write head performs regular writing on the magnetic recording medium on the basis of the appropriate value.

3. A device for determining a coercive force of a magnetic recording medium, comprising:

conveyance means for conveying the magnetic recording medium,

traveling quantity detection means for detecting a traveling quantity of the magnetic recording medium,

a write head for writing magnetic information on the magnetic recording medium at a plurality of different current values while the conveyance means conveys the magnetic recording medium in one direction,

a readout head for reading magnetic information on the magnetic recording medium conveyed by the conveyance means after the write head writes magnetic information on the magnetic recording medium, and

determination means for determining a coercive force of the magnetic recording medium on the basis of a voltage read by the readout head and a traveling quantity of the magnetic recording medium at the time of reading.

4. A device for determining a coercive force of a magnetic recording medium, comprising

conveyance means for conveying the magnetic recording medium,
traveling quantity detection means for detecting a traveling quantity
of the magnetic recording medium,
a write head for writing magnetic information on the magnetic
recording medium conveyed by the conveyance means,
write current waveform storage means for storing a waveform of a
write current value of the write head varying relative to a traveling quantity,
write current changing means for changing a write current of the write
head in accordance with a write current value stored in the write current
waveform storage means,
a readout head for reading magnetic information on the magnetic
recording medium conveyed by the conveyance means after the write head
writes magnetic information on the magnetic recording medium, and
determination means for determining a coercive force of the magnetic
recording medium on the basis of a voltage read by the readout head, a
traveling quantity of the magnetic recording medium at the time of reading,
and time-variation of a write current value stored in the write current
waveform storage means, and
wherein the write current changing means repeatedly changes the
same waveform a plurality of times.

5. The device for determining a coercive force of a magnetic recording medium, according to claim 4, wherein during repetition of the same waveform, the write head does not perform writing by time-space for separation of a plurality of same waveforms.

6. The device for determining a coercive force of a magnetic recording medium, according to claim 4, wherein during repetition of the same waveform, the write current changing means maintains a write current of the write head at a magnitude of a further waveform, which constitutes a reference position, for a duration during which the waveform constituting the reference position is formed.

7. The device for determining a coercive force of a magnetic recording medium, according to claim 4, wherein the write current changing means causes a write current of the write head to be alternately output and stopped repeatedly at predetermined intervals.

8. The device for determining a coercive force of a magnetic recording medium, according to claim 4, wherein the write current changing means stepwise increases a write current such that each time the write current is increased, a duration, during which the write current is maintained, is varied.

9. A device for determining a coercive force of a magnetic recording medium, comprising:

conveyance means for conveying the magnetic recording medium,
traveling quantity detection means for detecting a traveling quantity
of the magnetic recording medium,

a write head for writing magnetic information on the magnetic recording medium conveyed by the conveyance means,

write current waveform storage means for storing a waveform of a write current value of the write head varying relative to a traveling quantity,

write current changing means for changing a write current of the write head in accordance with a write current value stored in the write current waveform storage means,

a readout head for reading magnetic information on the magnetic recording medium conveyed by the conveyance means after the write head writes magnetic information on the magnetic recording medium, and

determination means for determining a coercive force of the magnetic recording medium on the basis of a voltage read by the readout head, a traveling quantity of the magnetic recording medium at the time of reading, and time-variation of a write current value stored in the write current waveform storage means,

wherein the determination means determines a traveling quantity of the magnetic recording medium at the time of reading by the readout head on the basis of that position, in which a read voltage value is larger at both ends of that region of the magnetic recording medium, of which waveform is read by the readout head.

10. A device for determining a coercive force of a magnetic recording medium, comprising:

a write head for writing information on the magnetic recording medium,

a readout head for reading magnetic information of the magnetic recording medium,

conveyance means for conveying the write head and the readout head,

traveling quantity detection means for detecting traveling quantities of the write head and the readout head,

write current changing means for changing a write current of the write head while the conveyance means conveys the write head in one direction,

reading control means for causing the conveyance means to convey the readout head after the write head writes magnetic information on the magnetic recording medium, and reading magnetic information on the magnetic recording medium, and

determination means for determining a coercive force of the magnetic recording medium on the basis of a value, which the reading control means uses the readout head to read, and a traveling quantity of the readout head at the time of reading.

11. A device for determining a coercive force of a magnetic recording medium, comprising:

conveyance means for conveying the magnetic recording medium relative to a write head and a readout head,

traveling quantity detection means for detecting a traveling quantity caused by the conveyance means,

write current changing means for changing a write current of the magnetic head while the conveyance means moves the magnetic recording medium relative to the write head in one direction, and

determination means for causing the readout head to read magnetic information of the magnetic recording medium, which is moved relative to the write head, after the write head writes magnetic information on the magnetic recording medium, and determining a coercive force of the magnetic recording medium on the basis of a voltage read by the readout head and a quantity of movement at the time of reading.

12. The device for determining a coercive force of a magnetic recording medium, according to claim 11, wherein the readout head reads magnetic information of the magnetic recording medium beforehand, and comprises magnetic information storage means for storing magnetic information of the magnetic recording medium read beforehand, and

after determination by the determination means, the write head writes the magnetic information, stored in the magnetic information storage means, on the magnetic recording medium at a current corresponding to a coercive force determined by the determination means.

13. A device for determining a coercive force of a magnetic recording medium, comprising:

conveyance means for conveying the magnetic recording medium relative to a write head and a readout head,

traveling quantity detection means for detecting a traveling quantity caused by the conveyance means,

write current changing means for changing a write current of the magnetic head while the conveyance means moves the magnetic recording medium relative to the write head in one direction,

write position detection means for detecting a position, in which the write head performs writing on the magnetic recording medium, and

determination means for causing the readout head to read magnetic information of the magnetic recording medium, which is moved relative to the readout head, after the write head writes magnetic information on the magnetic recording medium, and determining a coercive force of the magnetic recording medium on the basis of a voltage read by the readout

head, a quantity of movement at the time of reading, and the position, in which writing is performed.